

5 polynucleotide of claim 4 where the two sets of nucleic acids are separated by nucleic acids
that code for about 150 to 190, amino acid (positions). The nucleic acid polynucleotide of
claim 9 where the two sets of nucleotides are separated by nucleic acids that code for about
190 amino acids (positions). The nucleic acid polynucleotide of claim 10 where the two
10 5 sets of nucleotides are separated by the same nucleic acid sequences that separate the same
set of special nucleotides in SEQ. ID. NO. 1. Claims 1-11 where the first nucleic acid of
the first special set of amino acids, that is, the first special nucleic acid, is operably linked
to any codon where the nucleic acids of that codon codes for any peptide comprising from 1
15 to 10,000 amino acid (positions). The nucleic acid polynucleotide of claims 1-12 where the
first special nucleic acid is operably linked to nucleic acid polymers that code for any
peptide selected from the group consisting of: any any reporter proteins or proteins which
facilitate purification. The nucleic acid polynucleotide of claims 1-13 where the first special
20 nucleic acid is operably linked to nucleic acid polymers that code for any peptide selected
from the group consisting of: immunoglobulin-heavy chain, maltose binding protein,
glutathion S transfection, Green Fluorescent protein, and ubiquitin. Claims 1-14 where the
last nucleic acid of the second set of special amino acids, that is, the last special nucleic
acid, is operably linked to nucleic acid polymers that code for any peptide comprising any
25 amino acids from 1 to 10,000 amino acids. Claims 1-15 where the last special nucleic acid
is operably linked to any codon linked to nucleic acid polymers that code for any peptide
selected from the group consisting of: any reporter proteins or proteins which facilitate
purification. The nucleic acid polynucleotide of claims 1-16 where the first special nucleic
acid is operably linked to nucleic acid polymers that code for any peptide selected from the
30 group consisting of: immunoglobulin-heavy chain, maltose binding protein, glutathion S
transfection, Green Fluorescent protein, and ubiquitin.

25 Any isolated or purified nucleic acid polynucleotide that codes for a protease
capable of cleaving the beta secretase cleavage site of APP that contains two or more sets of
special nucleic acids, where the special nucleic acids are separated by nucleic acids that
code for about 100 to 300 amino acid positions, where the amino acids in those positions
may be any amino acids, where the first set of special nucleic acids consists of the nucleic
45 acids that code for DTG, where the first nucleic acid of the first special set of nucleic acids
is, the first special nucleic acid, and where the second set of nucleic acids code for either
DSG or DTG, where the last nucleic acid of the second set of special nucleic acids is the
last special nucleic acid, where the first special nucleic acid is operably linked to nucleic
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5 acids that code for any number of amino acids from zero to 81 amino acids and where each of those codons may code for any amino acid. The nucleic acid polynucleotide of claim 18, where the first special nucleic acid is operably linked to nucleic acids that code for any number of from 64 to 77 amino acids where each codon may code for any amino acid. The

10 5 nucleic acid polynucleotide of claim 19, where the first special nucleic acid is operably linked to nucleic acids that code for 71 amino acids. The nucleic acid polynucleotide of claim 20, where the first special nucleic acid is operably linked to 71 amino acids and where the first of those 71 amino acids is the amino acid T. The nucleic acid

15 polynucleotide of claim 21, where the polynucleotide comprises a sequence that is at least 95% identical to SEQ. ID. (Example 11) The nucleic acid polynucleotide of claim 22, where the complete polynucleotide comprises SEQ. ID. (Example 11) The nucleic acid

20 polynucleotide of claim 18, where the first special nucleic acid is operably linked to nucleic acids that code for any number of from 40 to 54 amino acids where each codon may code for any amino acid. The nucleic acid polynucleotide of claim 24, where the first special

25 15 nucleic acid is operably linked to nucleic acids that code for 47 amino acids. The nucleic acid polynucleotide of claim 20, where the first special nucleic acid is operably linked to 47 codons where the first those 47 amino acids is the amino acid E. The nucleic acid polynucleotide of claim 21, where the polynucleotide comprises a sequence that is at least

30 95% identical to SEQ. ID. (Example 10) The nucleic acid polynucleotide of claim 22, where the complete polynucleotide comprises SEQ. ID. (Example 10)

35 Any isolated or purified nucleic acid polynucleotide that codes for a protease capable of cleaving the beta (β) secretase cleavage site of APP that contains two or more sets of special nucleic acids, where the special nucleic acids are separated by nucleic acids that code for about 100 to 300 amino acid positions, where the amino acids in those

40 25 positions may be any amino acids, where the first set of special nucleic acids consists of the nucleic acids that code for the peptide DTG, where the first nucleic acid of the first special set of amino acids is, the first special nucleic acid, and where the second set of special nucleic acids code for either the peptide DSG or DTG, where the last nucleic acid of the

45 second set of special nucleic acids, the last special nucleic acid, is operably linked to 30 nucleic acids that code for any number of codons from 50 to 170 codons. The nucleic acid polynucleotide of claim 29 where the last special nucleic acid is operably linked to nucleic acids comprising from 100 to 170 codons. The nucleic acid polynucleotide of claim 30

50 where the last special nucleic acid is operably linked to nucleic acids comprising from 142

to 163 codons. The nucleic acid polynucleotide of claim 31 where the last special nucleic acid is operably linked to nucleic acids comprising about 142 codons. The nucleic acid polynucleotide of claim 32 where the polynucleotide comprises a sequence that is at least 95% identical to SEQ. ID. (Example 9 or 10). The nucleic acid polynucleotide of claim 33, where the complete polynucleotide comprises SEQ. ID. (Example 9 or 10). The nucleic acid polynucleotide of claim 31 where the last special nucleic acid is operably linked to nucleic acids comprising about 163 codons. The nucleic acid polynucleotide of claim 35 where the polynucleotide comprises a sequence that is at least 95% identical to SEQ. ID. (Example 9 or 10). The nucleic acid polynucleotide of claim 36, where the complete polynucleotide comprises SEQ. ID. (Example 9 or 10). The nucleic acid polynucleotide of claim 31 where the last special nucleic acid is operably linked to nucleic acids comprising about 170 codons. Claims 1-38 where the second set of special nucleic acids code for the peptide DSG, and optionally the first set of nucleic acid polynucleotide is operably linked to a peptide purification tag. Claims 1-39 where the nucleic acid polynucleotide is operably linked to a peptide purification tag which is six histidine. Claims 1-40 where the first set of special nucleic acids are on one polynucleotide and the second set of special nucleic acids are on a second polynucleotide, where both first and second polynucleotides have at least 50 codons. Claims 1-40 where the first set of special nucleic acids are on one polynucleotide and the second set of special nucleic acids are on a second polynucleotide, where both first and second polynucleotides have at least 50 codons where both said polynucleotides are in the same solution. A vector which contains a polynucleotide described in claims 1-42. A cell or cell line which contains a polynucleotide described in claims 1-42.

Any isolated or purified peptide or protein comprising an amino acid polymer that is a protease capable of cleaving the beta (β) secretase cleavage site of APP that contains two or more sets of special amino acids, where the special amino acids are separated by about 100 to 300 amino acid positions, where each amino acid position can be any amino acid, where the first set of special amino acids consists of the peptide DTG, where the first amino acid of the first special set of amino acids is, the first special amino acid, where the second set of amino acids is selected from the peptide comprising either DSG or DTG, where the last amino acid of the second set of special amino acids is the last special amino acid, with the proviso that the proteases disclosed in SEQ ID NO. 2 and SEQ. ID NO. 6 are not included. The amino acid polypeptide of claim 45 where the two sets of amino acids are